

# Low-Profile Precision Rotary Sensor Module

# 9850 Gen II Series

The 9850 Gen II Series offers a highly reliable rotary potentiometer sensor module that can be easily integrated into a wide variety of space-conscious applications requiring installation simplicity, long service life and repeatable accuracy. The 9850 Gen II Series introduces a new, lower profile (15.2mm; maximum connector receptacle height 25.9mm), designed to perform in demanding environments.

Manufactured for optimal cost-economies, the 9850 Gen II Series offers simple yet durable design strengths that can lead to significant systems costs savings. Plug-in simplicity and sealed connector contact is assured via an integral right-angle connector receptacle designed to accept industry-standard Packard Electric METRI-Pack™ connectors. This design also eliminates weak/stress points and leaks in exposure to water.

Twelve standard models offer a choice of 180° or 120° mechanical rotation with round or slotted mounting holes for optimal installation alignment.

## Electrical Specifications

Active Electrical Rotation: 85° or 130° Single Output (See Fig. 1)  
85° Dual Output

Total Resistance: 5,000 ohms  $\pm 20\%$

Linearity: Std.  $\pm 2.0\%$  over active electrical rotation (See Fig. 1)  
(Independent) Spec.  $\pm 0.5\%$  over active electrical rotation

Power Rating At 70°C: 0.15 Watts

## Mechanical Specifications

Mechanical Rotation (Nominal): 120°-180° single; 120° dual  
(See Table A)

Shaft Rotation/Direction: (See Table A)

Mechanical Life: 1,000,000 full cycles  
5,000,000 dither cycles

Stop Strength: 0.68 Nm max.

Torque: 0.11 Nm max.

Mounting Torque: 1.35 Nm max.

## Environmental Specifications

Temperature Limits: -40°C to +125°C

Vibration: 15 Gs, 50 to 1,000 Hz

Humidity: 95% @ 40°C

Shock: 50 Gs max.

## Options Available:

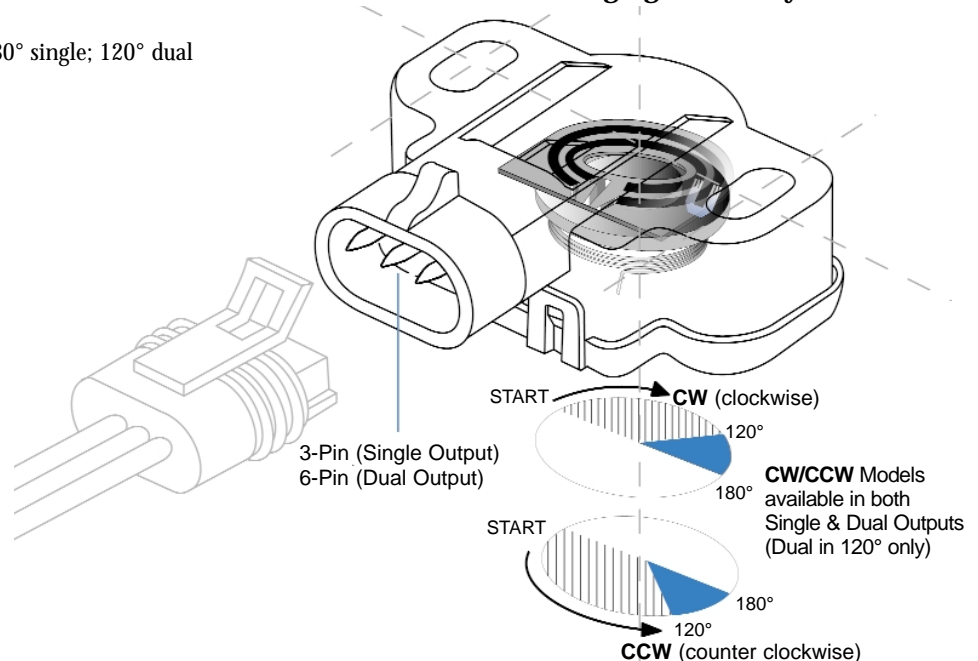
Integrated switch functions, user-specific electrical/mechanical rotation, mounting hole inserts, resistance and linearities.



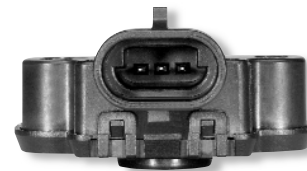
## Generation II Benefits:

- Dual-output offers the added functionality of two sensors in a single sensor
- Sealed integral interface accepts industry-standard Packard Electric METRI-Pack™ connectors
- Low-profile design answers space-conscious applications
- Additional mechanical rotation angles available

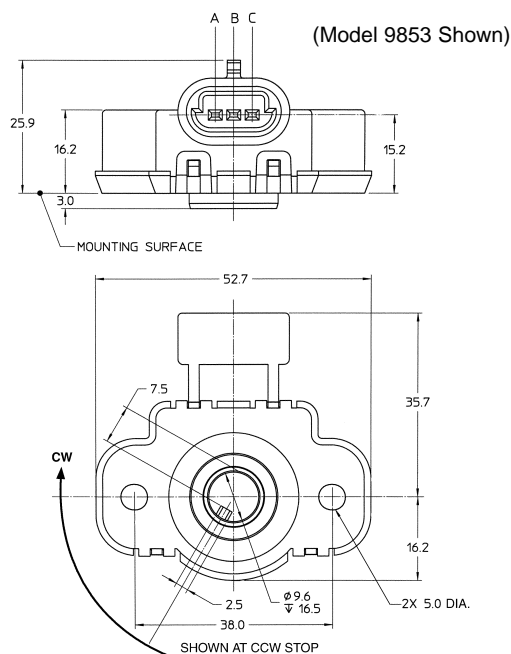
## Integrates Duncan's Proprietary Thick Film Element & Precious Metal Contact Technology with Maximum Packaging Flexibility



# 9850 Gen II Series Low-Profile Precision Rotary Sensor Modules



## Models 9851-9858 – Single Output (3-Pin)



## Models 9861-9864 – Dual Output (6-Pin)

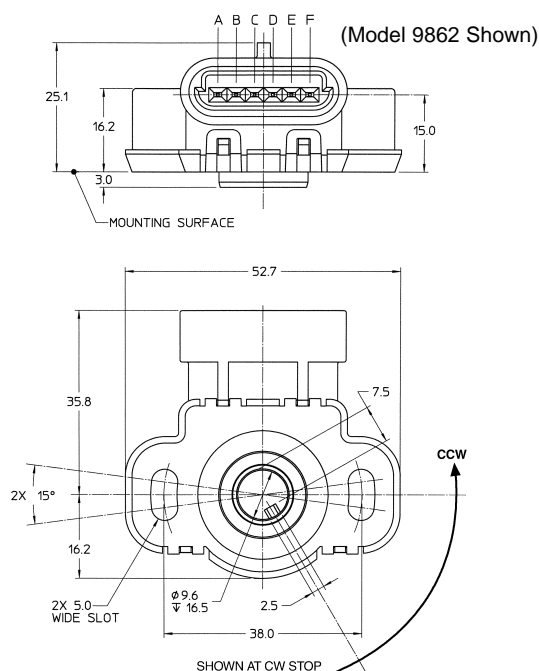
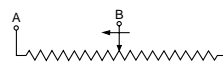


Table A

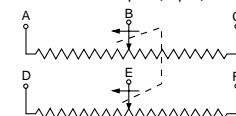
Model	Mechanical Rotation	Active Electrical Rotation	Rotation* Direction	Mounting <sup>1</sup> Hole
9851	120°	85°	CW	S
9852	120°	85°	CCW	S
9853	120°	85°	CW	R
9854	120°	85°	CCW	R
9855	180°	130°	CW	S
9856	180°	130°	CCW	S
9857	180°	130°	CW	R
9858	180°	130°	CCW	R

Model	Mechanical Rotation	Active Electrical Rotation	Rotation* Direction	Mounting <sup>1</sup> Hole
9861	120°	85°	CW	S
9862	120°	85°	CCW	S
9863	120°	85°	CW	R
9864	120°	85°	CCW	R

Single Output (3-pin)

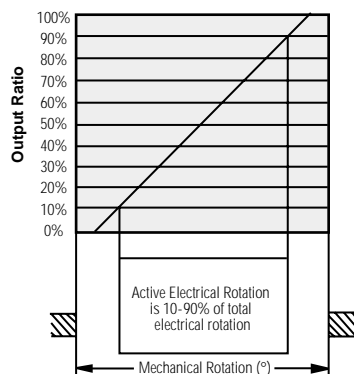


Dual Output (6-pin)



\*Spring-Return: CW Sensors return contact to CCW end  
CCW Sensors return contact to CW end

<sup>1</sup>Mounting Hole style: S = Slotted, R = Round



Note: For rotation outside active electrical rotation, linearity may exceed specified tolerances.

Fig. 1

## Mating Connector/Interface Information:

Sensor mates with Packard Electric METRI-Pack™ Series 150 Connectors

## Ordering Information

<b>98XX</b>	<b>R5K</b>	<b>L2.0</b>
Model No. (See Table A)	Standard Resistance	Standard Linearity (%)

**Example:** 9855 R5K L2.0 specifies a model 9855 (180° mechanical rotation, CW rotation direction) single output, 3-Pin Sensor Module with slotted mounting holes, standard resistance 5K ohms ±20%, Linearity ±2%.